WHAT IS CLAIMED IS:

1   1.   For use in a receiver capable of receiving from a

2   transmission channel an incoming stream of known symbols and

3   unknown symbols distorted by intersymbol interference (ISI), an

4   apparatus for reducing a precursor ISI signal comprising:

5   a decision feedback equalizer capable of receiving said

6   incoming stream of distorted known symbols and distorted unknown

7   symbols and generating a sequence of detected symbols; and

8   a known symbol generator capable of generating a copy of

9   a first known symbol prior to an estimation of said first known

10   symbol by said decision feedback equalizer, wherein said decision

11   feedback equalizer uses said copy of said first known symbol to

12   reduce a first precursor ISI signal in a second symbol transmitted

13   prior to said first known symbol.

1   2.   The apparatus as set forth in Claim 1 wherein said

2   decision feedback equalizer comprises a forward filter capable of

3   receiving said incoming stream of distorted known symbols and

4   distorted unknown symbols and generating an equalized output

5   comprising a first estimated sequence of known symbols and unknown

6   symbols.

1   3.   The apparatus as set forth in Claim 2 wherein said

2 decision feedback equalizer further comprises a first feedback

3 filter capable of receiving said sequence of detected symbols and

4 generating a first feedback signal capable of reducing in said

5 second symbol a first postcursor ISI signal caused by a first

6 detected symbol transmitted prior to transmission of said second

7 symbol.

1   4.   The apparatus as set forth in Claim 3 wherein said

2 decision feedback equalizer further comprises a first summation

3 circuit capable of summing said equalized output from said forward

4 filter and said first feedback signal from said first feedback

5 signal to produce a combined output.

1   5.   The apparatus as set forth in Claim 4 wherein said

2 decision feedback equalizer further comprises a symbol estimator

3 capable of quantizing said combined output from said first

4 summation circuit to thereby generate said sequence of detected

5 symbols.

1   6. The apparatus as set forth in Claim 5 wherein said

2   decision feedback equalizer further comprises a second feedback

3   filter capable of receiving said first known symbol from said known

4   symbol generator and generating a second feedback signal capable of

5   reducing said first precursor ISI signal in said second symbol.

1   7. The apparatus as set forth in Claim 6 wherein said

2   decision feedback equalizer further comprises a second summation

3   circuit capable of summing said first feedback signal and said

4   second feedback signal.

1   8. The apparatus as set forth in Claim 1 wherein said

2   transmission channel is one of a wireline channel and a wireless

3   channel.

1 9. A receiver capable of minimizing precursor intersymbol

2 interference (ISI) in an incoming stream of known symbols and

3 unknown symbols distorted by intersymbol interference (ISI) in a

4 transmission channel, said receiver comprising:

5   receiver front-end circuitry capable of receiving and

6 amplifying an incoming modulated signal;

7   demodulation circuitry capable of receiving said

8 amplified incoming modulated signal and producing therefrom a

9 baseband signal comprising said incoming stream of distorted known

10 symbols and distorted unknown symbols; and

11   an apparatus for reducing a precursor ISI signal

12 comprising:

13   a decision feedback equalizer capable of receiving

14 said incoming stream of distorted known symbols and distorted

15 unknown symbols and generating a sequence of detected symbols;

16 and

17   a known symbol generator capable of generating a

18 copy of a first known symbol prior to an estimation of said

19 first known symbol by said decision feedback equalizer,

20 wherein said decision feedback equalizer uses said copy of

21 said first known symbol to reduce a first precursor ISI signal

22 in a second symbol transmitted prior to said first known

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23   symbol.

1   10.   The receiver as set forth in Claim 9 wherein said

2   decision feedback equalizer comprises a forward filter capable of

3   receiving said incoming stream of distorted known symbols and

4   distorted unknown symbols and generating an equalized output

5   comprising a first estimated sequence of known symbols and unknown

6   symbols.

1   11.   The receiver as set forth in Claim 10 wherein said

2   decision feedback equalizer further comprises a first feedback

3   filter capable of receiving said sequence of detected symbols and

4   generating a first feedback signal capable of reducing in said

5   second symbol a first postcursor ISI signal caused by a first

6   detected symbol transmitted prior to transmission of said second

7   symbol.

1   12.   The receiver as set forth in Claim 11 wherein said

2   decision feedback equalizer further comprises a first summation

3   circuit capable of summing said equalized output from said forward

4   filter and said first feedback signal from said first feedback

5   signal to produce a combined output.

1   13.   The receiver as set forth in Claim 12 wherein said

2   decision feedback equalizer further comprises a symbol estimator

3   capable of quantizing said combined output from said first

4   summation circuit to thereby generate said sequence of detected

5   symbols.

1   14.   The receiver as set forth in Claim 13 wherein said

2   decision feedback equalizer further comprises a second feedback

3   filter capable of receiving said first known symbol from said known

4   symbol generator and generating a second feedback signal capable of

5   reducing said first precursor ISI signal in said second symbol.

1   15.   The receiver as set forth in Claim 14 wherein said

2   decision feedback equalizer further comprises a second summation

3   circuit capable of summing said first feedback signal and said

4   second feedback signal.

1   16.   The receiver as set forth in Claim 9 wherein said

2   transmission channel is one of a wireline channel and a wireless

3   channel.

1   17. For use in a receiver capable of receiving from a

2   transmission channel an incoming stream of known symbols and

3   unknown symbols distorted by intersymbol interference (ISI), a

4   method of reducing a precursor ISI signal comprising the steps of:

5   receiving the incoming stream of distorted known symbols

6   and distorted unknown symbols;

7   generating a sequence of detected symbols in a decision

8   feedback equalizer;

9   generating a copy of a first known symbol prior to an

10   estimation of the first known symbol by the decision feedback

11   equalizer; and

12   using the copy of the first known symbol to reduce a

13   first precursor ISI signal in a second symbol transmitted prior to

14   the first known symbol.

1   18. The method as set forth in Claim 17 wherein the decision

2   feedback equalizer comprises a forward filter capable of receiving

3   the incoming stream of distorted known symbols and distorted

4   unknown symbols and generating an equalized output comprising a

5   first estimated sequence of known symbols and unknown symbols.

1   19. The method as set forth in Claim 18 wherein the decision

2   feedback equalizer further comprises a first feedback filter

3   capable of receiving the sequence of detected symbols and

4   generating a first feedback signal capable of reducing in the

5   second symbol a first postcursor ISI signal caused by a first

6   detected symbol transmitted prior to transmission of the second

7   symbol.

1   20. The method as set forth in Claim 19 wherein the decision

2   feedback equalizer further comprises a first summation circuit

3   capable of summing the equalized output from the forward filter and

4   the first feedback signal from the first feedback signal to produce

5   a combined output.

1   21. The method as set forth in Claim 20 wherein the decision

2   feedback equalizer further comprises a symbol estimator capable of

3   quantizing the combined output from the first summation circuit to

4   thereby generate the sequence of detected symbols.

1   22. The method as set forth in Claim 21 wherein the decision

2   feedback equalizer further comprises a second feedback filter

3   capable of receiving the first known symbol from the known symbol

4   generator and generating a second feedback signal capable of

5   reducing the first precursor ISI signal in the second symbol.

1   23. The method as set forth in Claim 22 wherein the decision

2   feedback equalizer further comprises a second summation circuit

3   capable of summing the first feedback signal and the second

4   feedback signal.